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METIS D3.4: Final workshops packages: workshops for different educational levels and education contexts

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METIS - Meeting teachers co-design needs by means of Integrated Learning Environments

D3.4: Final workshops packages: workshops for different educational levels and education contexts

WP3: Design and development of teacher training workshops on learning design

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Executive Summary

Several decades of research in technology-enhanced learning (TEL) have clearly demonstrated the potential of digital technology to transform education. Yet the impact of TEL research on daily teaching-learning practices is still far from fulfilling this potential. Arguably, this is a gap in the capacity for learning design: educators need the tools and competencies which would allow them to identify educational challenges, describe the context in which they arise, identify the opportunities afforded by technology, project the insights derived from research, and devise new learning experiences. To address this gap, educators need tools and practices. Tools that would support them through the cycle of learning design – from conception to deployment and evaluation of techno-educational innovations. Professional practices that use such tools to ensure the robustness and effectiveness of their innovations and make learning design a daily habit and part of their professional identity. The METIS project (<http://metis-project.org/>) aims to contribute to this aim, by providing educators with an Integrated Learning Design Environment (ILDE) (Hernández-Leo, Asensio-Pérez, Derntl, Prieto, & Chacón, 2014; Hernández-Leo et al., 2015) and a workshop package for training educators in using the ILDE to support effective learning design.

Work Package 3, led by the OU (UK), is concerned with the design and development of the workshop package.

This deliverable is the final version of the METIS workshop package. It includes

- a meta-design for METIS workshops that provides a flexible reusable structure so that workshops can be customised to meet different needs ,
- a description of the rationale and pedagogical methodology on which the meta-design is based
- guidance for instantiating the meta-design in different contexts and
- example workshop packages based on the meta-design for three different educational sectors.

This document provides educators with a basis for delivering workshops about using the ILDE to support effective learning design. To create and run a workshop suitable for your own context, please proceed in the following way. Firstly, consider the meta-design; then choose one of the example workshop packages closest to your context; finally, use the guidelines to adapt it for your needs.



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1 Introduction

Albeit progress has been made in the use of ICT for education and training across Europe in the last years, effective integration of ICT should go beyond replacing, streamlining or accelerating current practices. It must also support “pedagogical and organisational innovation” (EACEA, 2009). The current gap between research and practice in Technology-Enhanced Learning (TEL) highlights the need for a shift in attention from the development of specific tools and resources to the support for their integration, e.g. in teacher practice for the design of ICT-based learning activities. However, this integration into practice needs support for the whole design and implementation life-cycle, from (co-)design to enactment (Kelly, Lesh, & Baek, 2008; Laurillard, 2008) .

The METIS project (<http://metis-project.org/>) aims at providing this kind of support, synthesising the achievements of the design paradigm and making them available to a broad circle of practitioners across multiple educational sectors such as adult education, vocational training and higher education. This is to be achieved mainly through a practitioner-centred approach, which combines a) technological support for the whole learning design life-cycle (in a so-called Learning Design Environment, or ILDE); b) professional development support in the form of ready-to-use workshop packages; and c) the dissemination of these project outcomes to a wide community of practitioners.

Work Package 3, led by the OU (UK), is concerned with the design and development of the ready-to-use workshop packages.

This deliverable includes:

1. a meta-design for the workshop packages (section 2), and a description of the rationale and pedagogical methodology on which the meta-design is based (section 3);
2. guidance for instantiating the meta-design in different contexts (section 4);
3. a catalogue of three example workshop packages based on the meta-design (section 5).

The three workshop packages have been developed and tested for use in higher education, adult training and vocational training. In each case the workshop structure has been developed from the meta-design that was included in Deliverable D3.3, and refined during a two stage piloting process in WP5. The workshop meta-design and package contents have been influenced by the functionality of the ILDE as delivered by WP2, and by the requirements of the three educational sectors.

Each workshop package contains: instructions for the trainers as to how to run the workshop; a sequence of activities for the trainer and the trainees; and attached learning



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resources to be used in the workshop. The learning resources include examples in each of 6 languages (ES, CA, EN, IT, EL, DE).



2 The METIS workshop meta-design

2.1 Introduction

The workshop structure presented in this section is a “meta-design”. This meta-design provides a flexible basis for developing ready-to-run workshops in which participants will learn about three complementary aspects related to learning design:

1. a particular design problem of interest to the participants which they solve through
2. an approach to design (based on the learning design studio (Mor & Mogilevsky, 2012), using
3. a tool set to support this approach (the ILDE).

2.2 The meta-design

A schematic overview of the METIS meta-design is shown in Figure 1. The meta-design begins with an introduction during which participants are introduced to the aims of the workshop and the ILDE. This is followed by a sequence of activities during which participants are guided through stages in the learning design cycle using the ILDE to support their work. During this cycle workshop participants work in teams on a learning design project of their own definition, and will produce an artefact at each stage which can be shared, discussed and evaluated.

A summary of the nature of each workshop activity in the cycle is described in the following paragraphs, and a more detailed view of the meta-design is shown in Figure 2. Guidance for using the meta-design to generate ready-to-run workshops for a wide range of different educational contexts is given in section 4, and a catalogue of learning resources which exemplify how the meta-design has been used in several different educational contexts is presented in section 5. This catalogue includes ready-to-run workshop materials on the topic of collaborative learning for three sectors: adult training, vocational training, and higher education. In Figure 2 the topic of the workshop is indicated by ‘X’ as figure 2 is a flexible structure that can be applied to many topics of interest to different sectors; in the examples given in section 5 the chosen topic is “Collaborative learning”. The relationship between the stages in the meta-design and the corresponding activities within the ready-to-run workshop materials is shown in Figure 3. This figure is included to help the reader to identify different approaches and activities within the example workshop packages that can be used for each stage in the meta-design cycle. To aid close inspection large scale versions of both figure 1 and figure 2 are available for download from the METIS meta-design page within the ILDE (<http://ilde.upf.edu/v/ijf>).

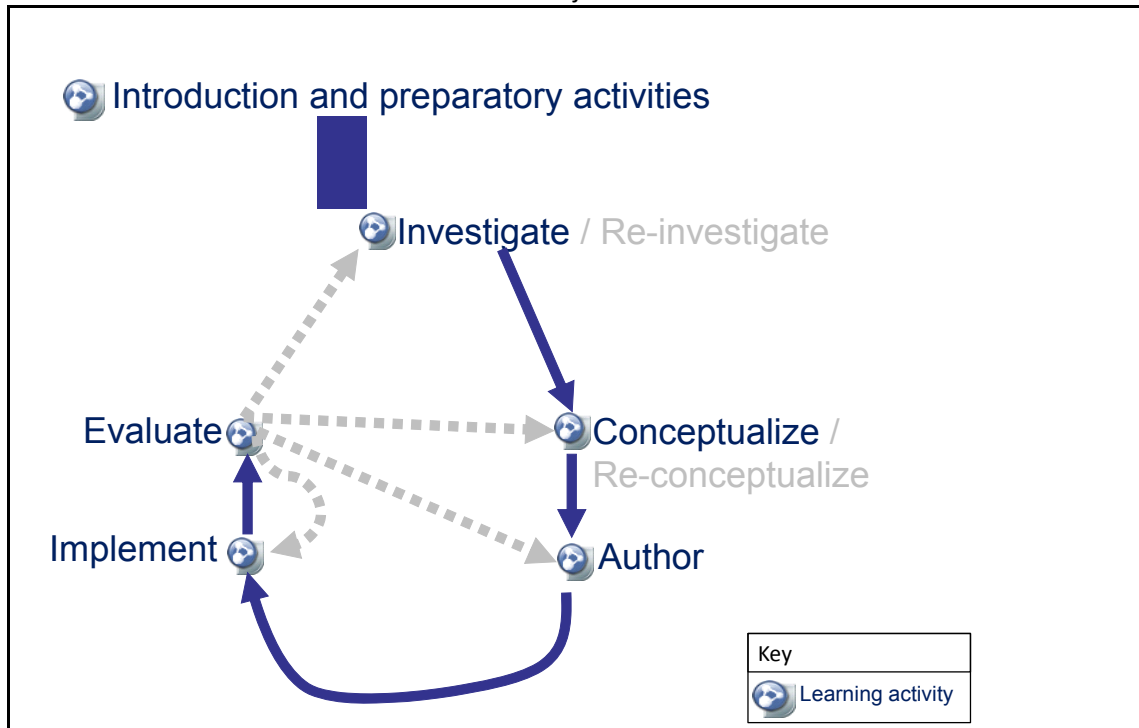


Figure 1: The METIS meta-design

2.2.1 Introduction and preparatory activities

The aims of the workshop are described, participants are divided into groups, and register with the ILDE. It is important that the aims of the workshop are focused on a topic or design problem of interest to the participants. For example, in the catalogue of resources presented in section 5 the topic is ‘collaborative learning’.

2.2.2 Investigate: understanding the context

In this phase, participants investigate the educational context that they are designing for, so as to understand the implications of design decisions that they will take in later phases of the design cycle. They carry out activities in which they consider any technical, physical, and temporal constraints that may exist, and reflect on the nature of the learners and teachers present in that context. They use their findings to produce a set of heuristic guidelines for evaluating the designs that they will produce later on in the workshop.

2.2.3 Conceptualize

Participants begin this phase by conceptualising the effects that their design is intended to have on their learners. They then consider examples in which X (the main topic of the workshop, e.g. ‘collaborative learning’ or ‘project based learning’) has been successfully used. Informed by the examples, participants then describe their vision for solving their design problem for the context they are focusing on, using a storyboard technique. This storyboard is a first draft, and it may be modified during the workshop.



2.2.4 Author

In this activity, each team adds details to their conceptualised vision to produce a prototype using one of the ILDE authoring tools. The prototype is not the final product, but enough to clarify the functionality and technical issues for meeting the learners' requirements.

2.2.5 Implement

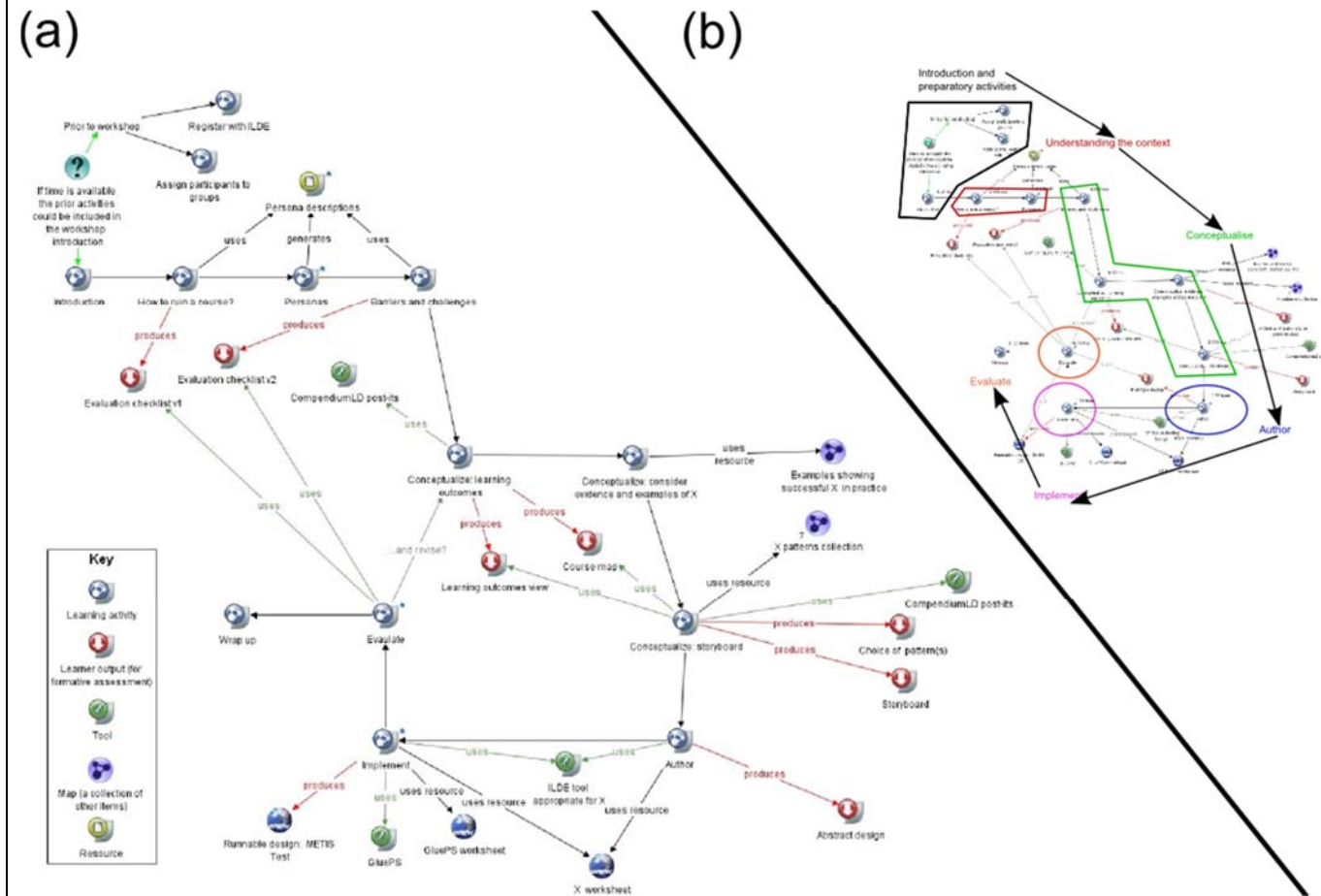
Participants use the ILDE to produce a runnable version of the activity in a specific VLE, for a particular group of students and using a particular set of tools.

2.2.6 Evaluate

Participants carry out a heuristic evaluation of their design work using the guidelines they produced during the 'Investigate' phase. They should also evaluate the workshop and the ILDE so as to inform their further development.

2.2.7 Re-investigate / Wrap up

The workshop concludes with a discussion of how participants can be supported in future by the facilitators in use of the ILDE to best effect with respect to their particular design problem, and in developing their knowledge of learning design in general. The workshop can be an end in itself, however the expectation is that at least some participants will move on to an enactment phase to develop and apply the solution building from the prototype. These next steps can be brought out in the wrap up section.





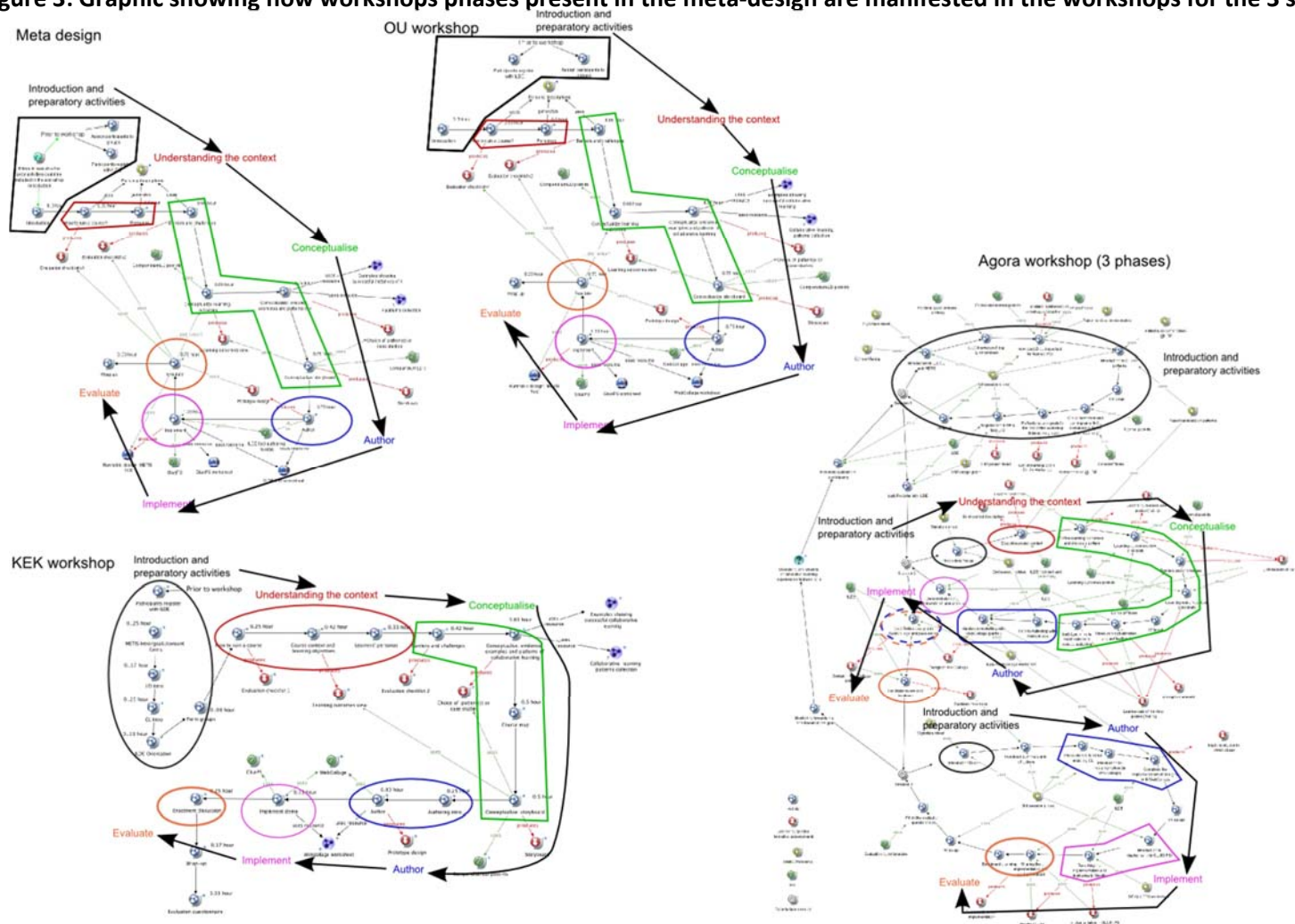
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Figure 2: CompendiumLD representation of the meta-design for the METIS workshops (a) detailed view showing relationship between the activities, tools and resources (b) overview showing how the activities, tools and resources relate to the learning design cycle in figure 1



Figure 3: Graphic showing how workshops phases present in the meta-design are manifested in the workshops for the 3 sectors





3 Design principles informing the meta-design

In this section we describe the rational and pedagogical methodology on which the METIS workshop meta-design is based. For concrete examples of how these design principles have been applied please refer to the learning resources for particular workshops presented in section 5.



3.1 Design principles

As reported in D3.3 (McAndrew, Brasher, Prieto, & Rudman, 2013), design principles for design of workshops were identified (section 2.2.1, Brasher, Walsh, McAndrew, & Mor, 2013). In Table 1 we show how these principles have been applied within the meta-design presented in section 2.

Table 1: Design principles including application notes



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Source	Principle	Application
Principles from the Educational principles database (http://www.edu-design-principles.org) that UVa have found useful in their workshops and can be applied to the METIS workshops	<ol style="list-style-type: none"> 1. Build on student ideas (http://www.edu-design-principles.org/dp/viewPrincipleDetail.php?prKey=166) 2. Reuse student artefacts as resource for learning (http://www.edu-design-principles.org/dp/viewPrincipleDetail.php?prKey=371) 3. Integrate online with offline activities (http://www.edu-design-principles.org/dp/viewPrincipleDetail.php?prKey=330) 4. Connect to personally relevant contexts (http://www.edu-design-principles.org/dp/viewPrincipleDetail.php?prKey=171) 	<ol style="list-style-type: none"> 1. METIS workshops will be on a specific theme relevant to participants' context, and will focus on participants own design problems. 2. During the workshop participants will be encourage to share resources produced during a workshop both through the ILDE and face-to-face. This principle is embodied in the 'Evaluate' stage in the meta-design in which participants will evaluate and learn from others' designs. 3. The workshop design includes activities which use both online (e.g. the ILDE) and offline tools (e.g. the OULDI post-its). 4. METIS workshops will be on a specific theme relevant to participants' context, and will focus on participants own design problems.
Additional principles from the Educational principles database that UPF have found useful in their workshops and can be applied to the METIS workshops	<ol style="list-style-type: none"> 5. Encourage learners to learn from others (http://www.edu-design-principles.org/dp/viewPrincipleDetail.php?prKey=224) 6. Employ multiple social activity structures (http://www.edu-design-principles.org/dp/viewPrincipleDetail.php?prKey=238) 7. Use multiple representations (http://www.edu-design-principles.org/dp/viewPrincipleDetail.php?prKey=203) 	<ol style="list-style-type: none"> 5. This principle is used explicitly in the 'Evaluate' stage and underlies all the other activities as they are collaborative in nature. 6. The workshop design includes multiple social activity structures. The emphasis is on working in small groups, with individual activity and whole class activity occurring occasionally (e.g. the 'How to ruin a module' activity, the 'Barriers and challenges' activity). 7. A variety of textual and graphical representations are used.



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Principles from reviewing the LDS methodology:	<p>8. Continued work on a challenge/design project: "the main activity of a course is the students' continued work on design challenges in a defined domain of practice" (akin to project-based learning)</p> <p>9. Public review of group artefacts: "classroom sessions are mostly dedicated to group work and public review of design artefacts"</p> <p>10. Iterate!: implicit in "continued work on design challenges in a defined domain of practice"</p>	<p>8. METIS workshops will be on a specific theme relevant to participants' context, and will focus on participants own design problems.</p> <p>9. Public review of design artefacts occurs in the activities 'Conceptualize: Storyboard' and 'Evaluate'.</p> <p>10. Iteration is implicit in the workshop design (see Figure 1), but time limitations may limit the iteration that is possible during the workshop itself.</p>
Some principles from CARDET's Design-Practice methodology:	<p>11. Include an early "how to ruin X" activity to get people started thinking about the topic X</p> <p>12. Break down a (part of a) learning design to a full detail level -- this is an important activity to get teachers started thinking in detail about design decisions and implications of those decisions (see also this paper)</p> <p>13. Pitching results -- Important to let people pitch their results and have peers discuss those. In the CARDET methodology it sounds asynchronous, but also very relevant in a synchronous/f2f setting.</p>	<p>11. Included as the second activity in the meta-workshop design.</p> <p>12. Creating a fully detailed design occurs in the 'Author' activity, in which participants create a detailed prototype.</p> <p>13. This occurs in the 'Conceptualize: storyboard' activity, and the 'Evaluate' activity.</p>
Some principles from ICOPER methodologies:	<p>14. Solving a proposed task (e.g., providing a narrative example to solve) -- helpful when training specific skills associated to improving proficiency around the elements of a design modelling language / tool.</p> <p>15. Improving participants' previous designs -- participants reconceptualise their actual designs (courses) using theoretical input provided gradually.</p>	<p>14. Examples are provided in 'Evidence and examples of 'X''. However, decisions need to be taken about how these are instantiated and presented to the different user groups.</p> <p>15. Iteration is implicit in the workshop design, but time limitations may limit the iteration that is possible during the workshop itself. The rate at which theoretical input is included will generally be a contextualisation decision, but there is scope to introduce it gradually over the workshop.</p>



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4 Guidelines for applying the meta-design in different contexts

1. In the workshop introduction, define ‘learning design’ and clarify how the ILDE supports learning design

This should set the scene for the workshop, and though the language and resources used will be context dependent, there should be much in common from one context to the next.

Time and workload considerations:

(i) Offer multiple session as these help participants balance their workload

Instead of delivering all phases of the design cycle within a single workshop, multiple sessions (two or more) should be offered. Multiple sessions enable participants to acquire deep knowledge about the ILDE and learning design through reflecting on and applying ideas between sessions, whilst keeping on top of their other work.

(ii) Ensure enough time is available to complete a design lifecycle within the workshop

The METIS workshops should guide participants through the learning design lifecycle, from conception of ideas through authoring, implementation, evaluation and back to reconceptualization in reaction to the evaluation results. However, the interests and knowledge of a particular user group and the limited time available for a workshop means that for a particular user context, it may be most beneficial to focus on particular aspects of the design lifecycle.

The choice of which artefacts should be iterated during the workshop, and by how much, will be a decision that is context dependent. For example, for some contexts the focus may be on iterating conceptual artefacts, whereas for others the focus may be on iterating artefacts producing during the implementation or authoring stages.

(ii) Facilitators should ensure that support for enactors is resourced and available

Participants work towards their first enactment using the ILDE may be distributed over a long period of time. Facilitators should ensure that support is available should participants require it.

2. Assign roles to team members for activities which focus on ILDE tools

This guideline relates particularly to the ‘Author’ and ‘Implement’ activities in the meta-design.

In a one day workshop in which participants work as teams, use of the ILDE to collaboratively produce learning design artefacts is problematic, because only one team member will be able to edit an artefact at any one time.

The team members including the person actually doing the editing must be given a



clear role to play during activities which focus on the ILDE. The roles assigned will be dependent on the context, but could include e.g. learner, teacher, organisation etc.

3. **Enactment considerations**

The ability and motivation of workshop participants to proceed to enacting a learning design will be influenced by many different factors, including factors related to the context within which they work and teach. For some contexts the decision to enact will be made by individual participants. For other contexts it may be a decision that is taken at a higher organisational level. Negotiation about a workshop's precise contents and arrangements with participants and managers in the organisation will be necessary to ensure that a workshop has the optimum effect with respect to enactment for the workshop participants, the facilitators and the organisations involved. This is also true for post-workshop support for participants that intend to proceed to enactment. The level of this post-workshop support will vary from context to context and individual to individual, but the support needed must be estimated and resourced to guarantee enactment.

4. **Evaluation is critical**

The METIS meta-design and the ILDE can support all phases of the learning design cycle shown in Figure 1. Evaluation can be carried out after each of the phases, and careful evaluation after each phase will contribute to the quality of the final design and its enactment. Whilst the level of evaluation can be reduced within a workshop to keep it to schedule, the importance and need for evaluation should be impressed on participants so as to ensure that it becomes a matter of routine during their day-to-day design work. This should ensure a high quality standard for enactments produced via METIS workshops and the ILDE.

5 **Catalogue of learning resources**

This catalogue includes ready-to-run workshop materials on the topic of collaborative learning for three sectors: adult training, vocational training, and higher education. The three workshop packages are hosted on the ILDE, and links to each of the packages are provided in the following sections. For each, a link to a publicly accessible version of the package is provided and also a link to the original source material. The original source can be duplicated and then edited by anyone with an ILDE account to suit their own context.

5.1 **Learning resources for the adult training sector**

Publicly accessible version: <http://ilde.upf.edu/v/iiz>.

Original version: <http://ilde.upf.edu/pg/lids/view/10680/>.

5.2 **Learning resources for the higher education sector**

Publicly accessible version: <http://ilde.upf.edu/v/ifu>.



Original version: <http://ilde.upf.edu/pg/lds/view/10567/>.

5.3 Learning resources for the vocational training sector

Publicly accessible version: <http://ilde.upf.edu/v/ij3>.

Original version: <http://ilde.upf.edu/pg/lds/view/10684/>.

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